

RUNNING HEAD: NATURAL SITE MAINTENANCE

Natural Site Maintenance in the Milwaukee Public
School System After Initial EPS Site Development

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Abstract

Earth Partnership for Schools in conjunction with teacher teams representing thirteen distinct schools within the Milwaukee Public School System have completed formal training designed to culminate in the design and creation of on-site natural spaces for student curriculum enhancement. This study undertaken as an action research project has identified the thirteen sites, surveyed key instructors as to site development and utilization, and using this data and on-site visits determined the number of sites maintained after development; giving for the first time a sense of sustainability of natural sites created in urban school settings after teacher team in-servicing / training sessions. The methodology as described may be transferable to similar urban post-installation studies.

BACKGROUND BY WAY OF AN INTRODUCTION

Twenty-four years ago I began teaching science at North Division High School in the inner city of Milwaukee, Wisconsin. My population of students were 99.9% African American in a school that carried statistics such as number one in the nation in teenage pregnancy, number one in the city in terms of poverty, and in the lowest rating when factors related to attendance, graduation rate, grade point average, and I dare say any statistic schools use to show competency and progress were employed. Yet, in this grim reality, I found myself attached to the most knowledgeable and dedicated science department that I have ever been fortunate enough to work with. These teachers engaged students in the learning process. From this environment I developed classroom management skills as well as differentiated lesson presentations that have opened the door for me to teach in Siberia, do field research in Costa Rico, write and implement numerous grants, and teach both standard classes (biology, physical science, physics) as well as unique classes (water science, animal husbandry, plant and animal structure, genetics, environmental science) all within an urban setting - although at various high schools - and always with of sense of creating this student engagement in learning..

Environmental science has always seemed like a way to 'tie content together'. I saw the need for environmental education within the inner city through moments such as when I taught a class about the adaptations of *Taraxacum officinale* (dandelion) allowing them to live and compete in lawns - flat horizontal leaves, tap root, many seeds - and I used the dandelion in flower as a living example in the lawn of the school. Immediately after hearing my words a student asked me, "What's that"? It was a dandelion in seed. This student (and others) had never connected the various parts of a dandelion life cycle;

something I had taken for granted. I adjusted my methods that year to create food webs in the lawn and trees using taxidermy mounts and enlarged pictures. The ravines of Lake Park became an area where we tracked deer (students) using an Audubon protocol. This seeking out and using lesson plans from Audubon, the Milwaukee County Zoo, the Urban Ecology Center and other organizations; all the while adapting the lessons for use in urban education with my students, was a pattern I embraced. One organization affiliated with the Madison Arboretum, Earth Partnership for Schools, trained me and several instructors as a team engaged in prairie restoration and water gardens.

I now am a mentor with the Milwaukee Public Schools. This position pairs me with 15 initial educators in many content areas and schools. Some of these schools were involved in the Earth Partnership for Schools training but the new instructors I work with were not necessarily being introduced to the curriculum or to the philosophy of utilizing restored school environments.

THE QUESTION

Through an opportunity that arose in the second semester of 2008-09 I enrolled in a University of Wisconsin - Madison graduate on-line course that promoted the concept of teacher driven action research within the classroom, school, and districts that we teach. Out of discussions between large groups - instructors and students - and small group discussions involving only the student's questions - research directions germinated a question that seemed to need answering:

- Which schools in the Milwaukee Public School System still have outdoor installations patterned after EPS training sessions?

This question arose as I wondered where I could point initial educators who wanted to see school natural spaces and replicate these installations.

- How successful were these installations at promoting environmental teaching within their schools?

This evolved from discussions with a group of two instructors at the same school in Bayfield, Northern Wisconsin who obviously work together to ensure that students would receive academic content (in part) in outdoor settings. I was wondering about the culture of environmental education that might develop within a school if there was a maintained and utilized natural setting attached to the school.

- How well are outdoor natural settings maintained after their initial development?

It became apparent that within my school district one certainty is that things change. 50% of the initial educators from five years back statistically have left the district by the present time. How could the natural settings create an environmental education culture if the nurturers/caretakers of the natural space are leaving their schools for other districts or taking a position in another school within the district (as happened in my particular case of teacher becoming district mentor)?

Questions resulting from discussions resulted in discussion and more questions until I had to come to grips with a starting point in my investigation that crystallized into the following research question:

Are Established EPS Sites Maintained After Installation?

This investigation would involve a subsection of my school district - those schools having gone through EPS training.

Through large group class discussion and self-reflection I realized that my question could serve the purpose of assessing the EPS program's impact over time.

Additionally I wanted to spot light the in-district natural space successes to:

- reward existing sustained accomplishments,
- to draw new instructors into the program,
- to highlight MPS environmental education efforts to date.

Evaluation results could be used by staff at the individual schools, by teachers from other MPS schools, and by educators-at-large looking for ideas, solutions, contacts and curriculum adaptations related to the teaching of environmental concepts through the use of developed urban natural spaces associated with particular schools.

DISCRIPTION OF THE RESEARCH PROCESS

Once the question was formulated the next step was to seek an in an accurate, measurable, reproducible way (Action Research). This involved the formation of an action research proposal that explained a reproducible methodology producing reliable and relevant data. Through weekly readings and discussions the mechanics of a survey tool were formulated and refined. Ongoing academic journal on-line research was frustrating. There appears to be a lack of published action research projects in general and specifically in terms of natural area maintenance after installation. This is true of university and field research as well. The sources located seem to fall in the following three categories and are incorporated in this study as background references listed in the bibliography:

- promotion of the concept of infusing the natural spaces associated with schools into existing environmental curriculum

- resources related to methods and curriculum associated with natural spaces and schools
- the use of school natural spaces for traditional environmental education as well as infusing environmental curriculum into content areas as diverse as English - journaling, poetry; social studies - mapping, reading the landscape; exceptional education - tactile gardens / sensory gardens for use by nontraditional students.

The journal research did not yield research that discussed the utilization of school natural spaces over time by school staff nor did the research indicate that movement of staff from one school to another had an impact on the utilization of a natural space either positively or negatively over time. As a group we speculated that the lack of journal entries related directly to continuation of natural space utilization might be related to budget monies being available at the start of a project with interest diminishing after the need for documentation ends.

The question proposed was of interest to me personally but I soon realized that the information generated from this direction of research opened the door to analyzing present urban outdoor education initiatives in a somewhat new way. Further discussion among my UW-Madison cohort supported my desire to conduct this research and the methodology I was incorporating. Feedback from the course instructors additionally supported my efforts.

Central to my action research was the need to develop a tool that would gather relevant data related to the research question. A survey of schools was proposed, discussed, and developed. The target for the survey was any trained teacher presently at a school where instructors had undergone Earth Partnership for Schools (EPS) training.

These instructors were identified through data collected by the EPS coordinators and represented the following schools:

Albert Story School	4 instructors	Lincoln Center of the Arts	1 instructor
Clarke Street School	3 instructors	Malcolm X Middle School	1 instructor
Craig Montessori School	4 instructors	O.W. Holmes	4 instructors
Gaenslen School	1 instructor	Riverside High School	3 instructors
Hamlin Garland Elementary	2 instructors	Urban Day School	4 instructors
Hartford University School	2 instructors	Trowbridge Elementary	3 instructors
Hawley Environmental School	2 instructors	13 schools	34 instructors

I would need to evaluate sites at 13 schools and provide surveys for 34 instructors. This plan was revised after several discussions. A two part survey initially given to one instructor at the school that would answer the research question as well as supply information regarding which teachers are still at the school and utilizing the natural site would be used. The motivation behind this approach was twofold, a lack of time to contact schools directly as well as a pervasive sense that faculty members within MPS are very mobile.

SURVEY TOOL - SURVEY 1 (appendix A)

The survey began with a photograph of the school and/or the natural site at the school taken within the last two weeks. This was added to personalize the survey in an attempt to create a connection with a future respondent and therefore a more likely response. This was followed by two questions:

- A. Who maintains the Earth Partnership based installations at your school?
- B. How often is the restoration site utilized by staff?

Both questions were designed to eliminate blame (if the site is not maintained) while identifying site caretaker and determining the level of activity at the site. Once the caretaker was identified a phone call to this individual (or email) would result in the

names of teachers utilizing the site. Those individuals and the initial responder (if applicable) would receive the second survey.

SURVEY TOOL - SURVEY 2 (Appendix B)

Survey 2 is introduced to the respondent with a short paragraph:

You have been identified as an instructor that uses the Earth Partnership for Schools natural area site established on your school grounds. Thank you for your efforts to infuse outdoor activities into your curriculum. The following questions serve as a means of establishing baseline information related to the stability of EPS sites over time. This survey should take no more than 5 minutes.

This is followed by a series of six questions designed to illustrate the type of involvement indicative of each teacher utilizing the site at their individual school (class type, grade level) as well as the respondent's connection with the Earth Partnership for Schools activities and curriculum. A final question pertains to specific activities used by the respondent with his/her students. Together, it is thought that the data obtained through the surveys will give a strong indication of the degree to which the Earth Partnership for Schools natural space installations is maintained after their initial creation? This maintenance demonstrated through 1) a photograph taken by myself of the site, 2) through the response of a designated/self-appointed caretaker, and 3) through the responses of teacher's utilizing the site with their students.

It became apparent that responses to the initial survey would be limited (4 of 13 surveys returned) so an additional survey method was incorporated - using district mentor teachers who travel to schools weekly were asked to email their impressions of natural sites after identifying site locations at EPS schools. These responses were verified by me through actual site visits and digital images made at that time.

ORGANIZATION & ANALYSIS OF THE DATA

The information received from the study is incorporated in Table 1 below.

Table 1: Result of Maintenance Evidence Gathered at Established EPS Sites

Site Location	Survey (4)	If survey not returned - phone call attempted	Mentor Response for Assistance (6)	Photo Evidence (13) 7 sites	Site Results: Present 7 Maintained 7 Utilized 6
	33% return rate	100%	46%	100% visited	Present 7/13 54% Maintained 7/7 100% Utilized 6/7 86%
Albert Story School	Sent X Returned X Maintained X	--	--	Site maintained	Present X Maintained X Utilized X
Hawley Environmental	Sent X Returned X Maintained X	--	below	Site maintained	Present X Maintained X Utilized X
Clarke	Sent X Returned	Yes	--	Site not maintained	Present (not on site) Maintained Utilized
Garland	Sent X Returned	Yes	--	Site maintained	Present X Maintained X Utilized X
Holmes	Sent X Returned X Not developed X	--	--	Site not maintained	Present 0
Trowbridge	Sent X Returned	Yes	below	Site maintained	Present X Maintained X Utilized X
Riverside	Sent X Returned X Maintained X	--	--	Site maintained	Present X Maintained X Utilized X
Craig Montessori	Sent X Returned	Yes	below	Site maintained	Present X Maintained X Utilized X
Gaenslen	Sent X Returned	Yes	below	Site maintained	Present X Maintained X Utilized --
Hartford	Sent X Returned	Yes Teachers gone	--	Site not maintained	Present 0
Urban Waldorf	Sent X Returned	Yes	below	Site not maintained	Present 0
Malcolm X (school closed)	Sent 0	-- (school closed)	below	Site not maintained	Present 0
Lincoln	Sent X Returned	Yes Teachers gone	--	Site not maintained	Present 0

Analyses of the 4 surveys returned indicate that 3 of the 4 schools established and maintained a natural site. Schools where surveys were not returned were called to verify whether the EPS instructors still taught at the school. 6 of the 8 schools called still had

an EPS instructor at their school. One school was identified at this point as no longer being in existence. Column 4 arose through the request of city wide mentors to identify established natural sites at EPS schools. There responses are incorporated in Table 2 below:

Table 2: Mentor Responses related to EPS Site Schools

Craig Montessori	Craig Montessori has a Garden that wraps around the front of the school. They also have a greenhouse indoors. I'm not sure who the point person is, but Ruth Oldson is the middle school science teacher and works with her students on environmental issues and works in conjunction with Grow Power. LL
Gaenslen	The person at Gaenslen struggling to keep up the garden is Kathy Tolbert. I am at Gaenslen as I read this. There is a garden in the front so I will check. LL
Hawley	Hi Jeff, I know that Hawley maintains their natural area. Teachers and students (including the science specialist) use the space with students. Hope this helps. AM
Urban Waldorf	Hi Jeff, I just left Urban Waldorf. I spoke with the assistant principal and she said that there are homes built in the area that the garden should have been. TB
Malcolm X	No longer a school - K
Trowbridge	Grassy natural area, school specialty is the great lakes. K & S

This mentor data eliminated three schools and identified three other schools that either did not or did establish EPS natural sites that are still maintained. Finally, on May 16, 2009 I surveyed all initially identified EPS sites. My visits involved a walk around the school and through any courtyard. Photographs of all schools and natural areas were taken (Appendix C). The results indicate that 7 of 13 EPS schools established natural sites that are identifiable at this date - 54%. Of these 7 schools all 7 are involved in some degree of maintenance on the sites and 6 or 7 utilize the sites with their students.

The relevance of this particular action research project to my personal teaching position is specific to my mentoring practices. Working with initial educators requires that I have many and diverse tools in my chest to pull out as I assist the instructor in the delivery of a lesson to his/her students. I need to know *before* I propose a unit of study (or method of delivering instruction to a student related to a unit) that what I am

proposing is worth the time my initial educator will have to put into the endeavor.

Activities for a new instructor that result in methods being used for several years are often given preference and this study will indicate the degree to which:

- EPS natural sites exist in the Milwaukee Public School System- 7
- EPS trained teachers are actively engaged in using the natural sites with their students - 6

The photos and contact information can be fashioned into a web page that will list facilitators of natural sites within MPS who could answer questions pertaining to the use and maintenance of natural school sites. This information has been forwarded to MPS's Green Initiative Team Directors. The listing of sites will serve to inform teachers throughout the district of potential research/teaching opportunities and model sites.

FINAL REFLECTIONS ON THE ACTION RESEARCH PROCESS

The first survey (Appendix A) was to be delivered in person but the closing of 18 MPS schools temporarily due to influenza (H1N1 virus) resulted in my being quarantined, so surveys identified as Survey 2 (Appendix B) were delivered via email to teachers identified as having been in past EPS trainings. The use of mentors gave non-standardized but relevant data. The most conclusive source of data was the actual site visit followed with photographic evidence of the sites. The action research process guided my study development and data analysis as well as creating a supportive learning environment conducive to asking of questions and constructive feedback. Additionally, the process as designed incorporates a presentation of data taking the research through the final stages of the scientific process - public review and revision.

APPENDIX A

**Survey of natural site utilization after establishment through the Earth Partnerships
for School Program within the Milwaukee Public Schools**

(image of school or site or graphic of school)	Address
	Grades
	Phone
	email

A. School Name: (filled in prior to distribution)

B. Who maintains the natural space installations at your school?

C. How often is the restoration site utilized by staff?

- ☐ Once per year ☐ Once per semester ☐ Once per quarter
☐ Extended teaching unit in one semester
☐ Extended teaching unit in two semesters
☐ Site was developed but is not currently used by any site instructors.

D. Additional Comments:

Thank you for your assistance.

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APPENDIX B

Survey 2 (taken via email format)

Survey of natural site utilization after establishment through the Earth Partnerships for School Program within the Milwaukee Public Schools

(image of school or site or graphic of school)	Address
	Grades
	Phone
	email

A. School Name: (filled in prior to distribution) **B. Instructor Name:** _____

You have been identified as an instructor that uses the Earth Partnership for Schools site established on your school grounds. Thank you for your efforts to infuse outdoor activities into your curriculum. The following questions serve as a means of establishing baseline information related to the stability of EPS sites over time. This survey should take no more than 5 minutes.

C. With which type of class(es) do you typically use the site? (please check all that apply)

☐ science ☐ English ☐ art ☐ math ☐ other (specify _____)

D. What grade level do you typically use the site with? (please check all that apply)

☐ PreK School - K ☐ 1st Grade ☐ 2nd Grade ☐ 3rd Grade ☐ 4th Grade
☐ 5th Grade ☐ 6th Grade ☐ 7th Grade ☐ 8th Grade ☐ High School

E. Are you familiar with the Earth Partnership for Schools (EPS) Curriculum or EPS Teacher In-service Program? (please circle one choice)

YES NO UNSURE

F. Do you utilize the EPS curriculum with your students when they are engaged at the natural site? (please circle one choice)

YES NO UNSURE OF SOURCE OF CURRICULUM

G. What activities do you engage your students in when working within the site?

 (Use the back of this survey for additional space.)

May I contact you via email or phone for a brief follow-up interview? YES NO

EMAIL _____ or PHONE _____










Thank you for your assistance.

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APPENDIX C

School Images

			
Clarke St School (no site)	Craig Montessori (site maintained)	Gaenslen School (site maintained)	Garland School (site maintained)
			
Hartford School (no site)	Hawley Environmental School (site maintained)	Holmes School (no site)	Lincoln Middle School (no site)
			
Riverside High School (site maintained)	Story School (site maintained)	Trowbridge School (site maintained)	Urban Waldorf School (no site)

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